



Docket No.: Z&PINFN10309

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By: 

Date: November 6, 2003

UNITED STATES IN THE PATENT AND TRADEMARK OFFICE

Applic. No. : 10/616,396
Applicant : Matthias Goldbach et al.
Filed : July 9, 2003
Art Unit : to be assigned
Examiner : to be assigned

Docket No. : Z&PINFN10309
Customer No. : 24131

LETTER

Hon. Commissioner for Patents

Sir:

Enclosed please find a copy of the English translation of the International Preliminary Examination Report for the above-identified application. Please enter it into the file.

Respectfully submitted,


For Applicants

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Date: November 6, 2003

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/bmb

PATENT COOPERATION TREATY

PCT

**NOTIFICATION OF TRANSMITTAL
OF COPIES OF TRANSLATION
OF THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

(PCT Rule 72.2)

From the INTERNATIONAL BUREAU

To:

GINZEL, Christian
Postfach 330 920
80069 München
Germany

Date of mailing (day/month/year) 06 October 2003 (06.10.03)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference INF-P10309WO	
International application No. PCT/EP02/00102	International filing date (day/month/year) 08 January 2002 (08.01.02)
Applicant INFINEON TECHNOLOGIES AG et al	

1. Transmittal of the translation to the applicant.

The International Bureau transmits herewith a copy of the English translation made by the International Bureau of the international preliminary examination report established by the International Preliminary Examining Authority.

2. Transmittal of the copy of the translation to the elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following elected Offices requiring such translation:

JP,KR,US

The following elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

EP

3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report.

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

<p>The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland</p> <p>Facsimile No. (41-22) 338.89.75</p>	<p>Authorized officer</p> <p>Richard FORAX (Fax : 338 89 75)</p> <p>Telephone No. (41-22) 338 8199</p>
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Translation

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference INF-P10309WO	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP02/00102	International filing date (<i>day month year</i>) 08 January 2002 (08.01.02)	Priority date (<i>day month year</i>) 09 January 2001 (09.01.01)
International Patent Classification (IPC) or national classification and IPC H01L 21/8242		
Applicant INFINEON TECHNOLOGIES AG		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.	
2. This REPORT consists of a total of <u>6</u> sheets, including this cover sheet.	
<input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).	
These annexes consist of a total of <u>5</u> sheets.	
3. This report contains indications relating to the following items:	
I	<input checked="" type="checkbox"/> Basis of the report
II	<input type="checkbox"/> Priority
III	<input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	<input type="checkbox"/> Lack of unity of invention
V	<input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement
VI	<input type="checkbox"/> Certain documents cited
VII	<input type="checkbox"/> Certain defects in the international application
VIII	<input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 08 August 2002 (08.08.02)	Date of completion of this report 28 April 2003 (28.04.2003)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP02/00102

I. Basis of the report

1. With regard to the **elements** of the international application:*

- ☒ the international application as originally filed
- ☒ the description:
 pages 1-53 . as originally filed
 pages _____ . filed with the demand
 pages _____ . filed with the letter of _____
- ☒ the claims:
 pages _____ . as originally filed
 pages _____ . as amended (together with any statement under Article 19
 pages _____ . filed with the demand
 pages 1-31 . filed with the letter of 08 April 2003 (08.04.2003)
- ☒ the drawings:
 pages 1/21-21/21 . as originally filed
 pages _____ . filed with the demand
 pages _____ . filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____ . as originally filed
 pages _____ . filed with the demand
 pages _____ . filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig. _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/EP 02/00102

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-31	YES
	Claims		NO
Inventive step (IS)	Claims	29	YES
	Claims	1-28, 30, 31	NO
Industrial applicability (IA)	Claims	1-31	YES
	Claims		NO

2. Citations and explanations

1. This report makes reference to the following documents:

D1: US-A-5 658 816 (RAJEEVAKUMAR THEKKEMADATHIL VE)
19 August 1997 (1997-08-19)

D2: WO-A-00/67326 (RISCH LOTHAR; WIDMANN DIETRICH
(DE); ENDERS GERHARD (US); ILG MATT) 9 November
2000 (2000-11-09)

D3: US-A-5 406 515 (RAJEEVAKUMAR THEKKEMADATHIL V)
11 April 1995 (1995-04-11)

D4: EP-A-0 903 782 (SIEMENS AG) 24 March 1999 (1999-
03-24)

D5: US-B-6 190 9881 (HORAK DAVID ET AL) 20 February
2001 (2001-02-20).

2. The amendments submitted with the letter of 8 April 2003 introduce substantive matter which, contrary to PCT Article 34(2)(b), goes beyond the disclosure in the international application as filed. The amendments concerned are as follows: in step (b) of present Claim 1 the sub-step according to which the **semiconductor substrate** is etched anisotropically is left out. As a result the subject matter of Claim 1 goes beyond the disclosure in the international

application as filed. Claim 1 is therefore not admitted.

3. The application does not satisfy the requirements of PCT Article 6 because Claims 1-31 are not clear.
 - 3.1 The order of the method steps in Claims 1-31 is not clear.
 - 3.2 The expression "second liner" in Claims 27, 28, 30 and 31 is vague and unclear and leaves the reader in doubt as to the meaning of the technical feature concerned. As a result, the subject matter of these claims is not clearly defined (PCT Article 6).
 - 3.3 The expression in Claim 19 "low dielectric constant" is vague and unclear and leaves the reader in doubt as to the meaning of the technical feature concerned. As a result, the subject matter of this claim is not clearly defined (PCT Article 6).
4. The present application does not satisfy the requirements of PCT Article 33(3) because the subject matter of Claims 1-28, 30 and 31 does not involve an inventive step, insofar as these claims are understood correctly (see unclear points referred to above).
 - 4.1 The subject matter of Claim 1 (the order of the method steps being understood in the sense of the description and the figures) differs from the disclosure in D1 (see Figures 1-6 and corresponding text; columns 2-3) in that the surfaces of the lower trench regions are doped after production of the lower trench regions. This is merely an alternative

way of producing the lower electrode of the capacitor, which is well known to a person skilled in the art.

The subject matter of Claim 1 therefore does not involve an inventive step.

- 4.2 The additional technical features of Claims 2-10, 13-28, 30 and 31 are likewise known from D1 (see Figures 1-6 and corresponding text; columns 2-3).
- 4.3 The additional technical feature of Claim 11 is no more than a routine measure. A person skilled in the art would consider it straightforward to incorporate this feature into the method disclosed in D1 which in view of the content of the present application and the prior art is unlikely to present any unexpected difficulties or to have any unexpected effects.
- 4.4 As regards Claim 12, the formation of mesopores for obtaining a higher capacity is already known (see, for example, D4, Figure 2, and corresponding text).
5. The applicant is reminded that the content of EP applications belonging to the patent family of document D5 would be prejudicial to the novelty of the subject matter of Claim 1 (EPC Article 54(3)).
6. For the sake of completeness, the applicant's attention is drawn to the following:
- 6.1 Independent Claim 1 has not been drafted in the two-part form defined by PCT Rule 6.3(b). However, the two-part form would appear to be appropriate in this

case. Accordingly, the features known in combination from the prior art should be set out in a preamble (PCT Rule 6.3(b)(i)) and the remaining features should be specified in a characterizing part (PCT Rule 6.3(b)(ii)).

6.2 Contrary to the requirements of PCT Rule 5.1(a)(ii), the description does not cite documents D1-D4 or indicate the relevant prior art disclosed therein.

6.3 The features of the claims are not followed by reference signs placed between parentheses (PCT Rule 6.2(b)).

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